

- when it has to be **right** 



Table of Contents	EN
Instrument Set-up 2	Level 2
Introduction 2	Area21
Overview 2	Volume22
Basic measuring screen 3	Photo23
Selection screen 3	Compass24
Pointfinder (Viewscreen) 4	Gallery 25
Charging the Li-Ion battery via USB 5	Triangular area 26
Operations 6	Long range mode 26
Using the Touch Screen 6	Height-profile measurement 27
Switching ON/OFF 7	Sloped objects 28
Clear 7	Height tracking29
Message Codes 7	Trapezium30
Multifunctional endpiece 7	Stake out31
Permament / Minimum-Maximum measuring 7	Pythagoras (2-point) 32
Add / Subtract 8	Pythagoras (3-point) 33
Pointfinder (Viewscreen) 8	Width34
Screenshot 9	Diameter 35
	Area from Photo 36
<b>Settings</b>	Technical Data37
Overview 10	
Tilt units 10	Message Codes38
Distance units	<b>Care</b> 38
Beep ON/OFF 12	<b>Warranty</b> 38
Digital level ON/OFF 12	Safety Instructions39
De-/Activate keylock 12	Areas of responsibility 39
Switch on with keylock 12	Prohibited use 39
Bluetooth® Settings 13	Limits of use39
Calibration of tilt sensor (Tilt Calibration) 14	Disposal 40
Personalized favorites	Electromagnetic Compatibility (EMC) 40
Illumination 15	FCC statement (applicable in U.S.) 40
Date and Time 15	Déclaration FCC, applicable aux États-Unis
Compass Adjustment 16	Normativa FCC (aplicable en
Touch Screen ON/OFF 16	EE UU)41
Offset 17	Use of the product with Bluetooth® 42
Reset 17	Laser classification42
Functions 18	Labelling 42
Overview 18	Labelling
Timer 18	
Calculator	
Adjusting measuring reference/tripod 19	
Memory 20	
Measuring single distance 20	
Smart Horizontal Mode 20	

**Instrument Set-up** 

#### Introduction



The safety instructions and the user manual should be read through carefully before the product is used for the first time.



The person responsible for the product must ensure that all users understand these directions and adhere to them.

The symbols used have the following meanings:

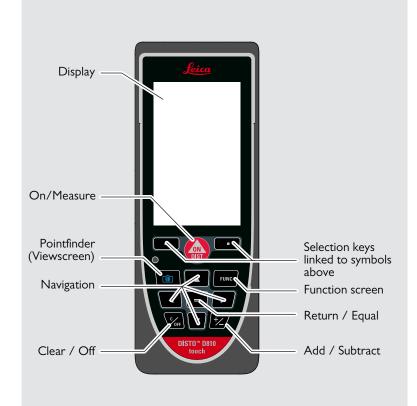
#### **WARNING**

Indicates a potentially hazardous situation or an unintended use which, if not avoided, will result in death or serious injury.

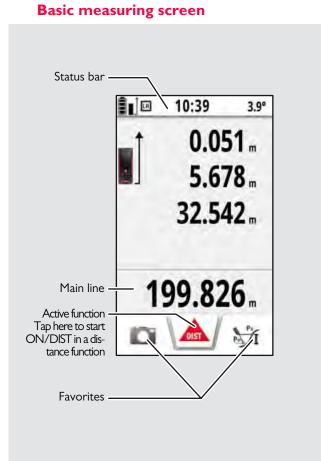
Indicates a potentially hazardous situation or an unintended use which, if not avoided, may result in minor injury and/or appreciable material, financial and environmental damage.

Important paragraphs which must be adhered to in practice as they enable the product to be used in a technically correct and efficient manner.

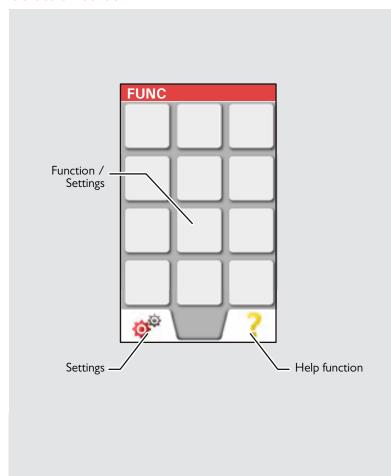
#### **Overview**



## **Instrument Set-up EN**

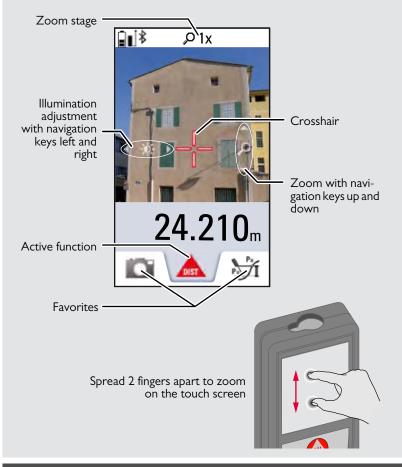


#### **Selection screen**



**Instrument Set-up EN** 

# **Pointfinder (Viewscreen)**



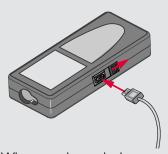
**Instrument Set-up EN** 

## Charging the Li-Ion battery via USB

Charge the battery before using it for the first time. Use the provided cable to charge the battery.

Plug the small end of the cable into the port of the device, and plug the end of the charger into an electrical socket. Select the appropriate connector for your country. The device cannot be used while

The computer can also be used to charge the device, but this takes more time. If the device is connected to the computer via USB cable, you can download or delete the gallery. It is not possible to upload any data.



When you charge the battery, the following icons show the status:









Charge batteries when battery symbol is flashing.
While charging, the device may heat up. This is normal and should not affect the device's lifespan or performance. If the battery gets hotter than 40°C / 104°F, the charger stops.
At a recommended storage temperature of -20°C to +30°C (-4°F to +86°F), batteries containing a 50% to 100% charge can be stored up to 1 year. After this storage period the batteries must be recharged.
To save energy, upplies the charger when not in use

**A**CAUTION

Connecting the charger improperly may cause serious damage to the device. Any damage caused by misuse is not covered by the warranty. Use only Leica-approved chargers, batteries, and cables. Unapproved chargers or cables can cause the battery to explode or damage the device.

If the device is connected to the computer via USB cable, you can download or delete the gallery. It is not possible to upload

**EN Operations** 

#### Using the Touch Screen

trical devices.

Electrostatic discharges can cause the touch screen to malfunction.

Do not allow the touch screen to contact water. The touch screen may malfunction in humid conditions or when exposed to water.

To avoid damaging the touch screen, do not tap it with anything sharp

#### **Tapping**



Tap on the display to open an onscreen button or to make a selection. Tapping on the icon in the middle of the bottom line activates the distance measurement or triggers the camera.

#### **Dragging**



Drag on the display to move to prior or to next screen.

## **Pinching**



Spread 2 fingers apart to zoom.

Instead of using the touch screen, the normal keypad but-tons can be used also.

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# **Switching ON/OFF**





Device is turned OFF.

#### Clear

If no key is pressed for 180 sec, the device switches off au-tomatically.



Undo last action.

# **Message Codes**

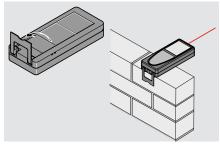


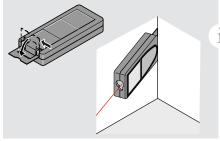
Leave actual function, go to default operation mode.

If the info icon appears with a number, observe the instructions in section "Message Codes". Example:



#### **Multifunctional endpiece**

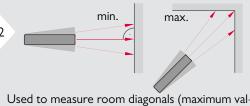




of the endpiece is automatically detected and the zero point is accordingly adjusted.

#### Permament / Minimum-Maximum measuring





Used to measure room diagonals (maximum values) or horizontal distance (minimum values)

The minimum and maximum distance measured is displayed (min, max.). The last value measured is displayed in the main line.

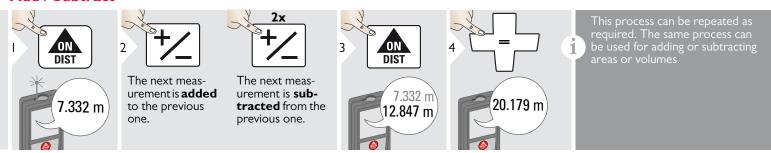




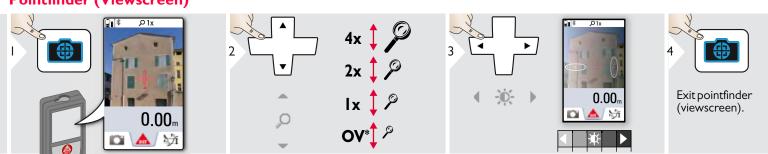
Stops permanent / minimummaximum measuring.



#### Add / Subtract



#### **Pointfinder (Viewscreen)**



This is a great help for outdoor measuring. The integrated pointfinder (viewscreen) shows the target on the display. The device measures in the middle of the cross hair, even if the laser dot is not visible.

Parallax errors occur when the pointfinder camera is used on close targets, with the effect that the laser appears displaced in the crosshair. In this case rely on the real laser dot.

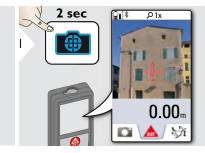
\* OV = Overview

Leica DISTO™ D810 touch 799093

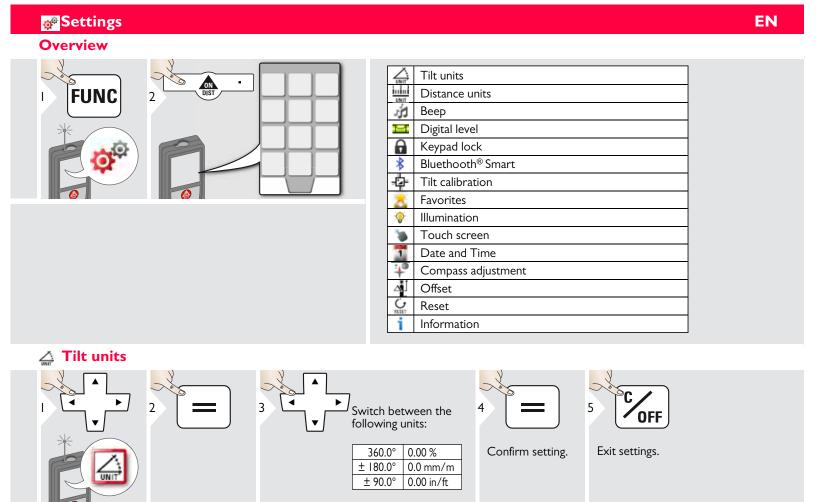
i

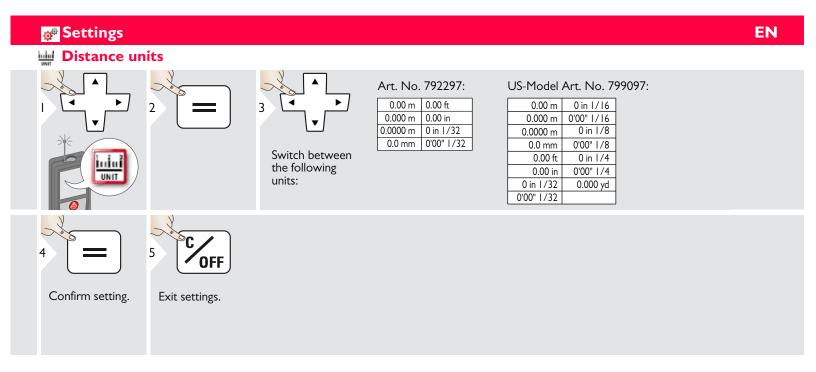


# Screenshot

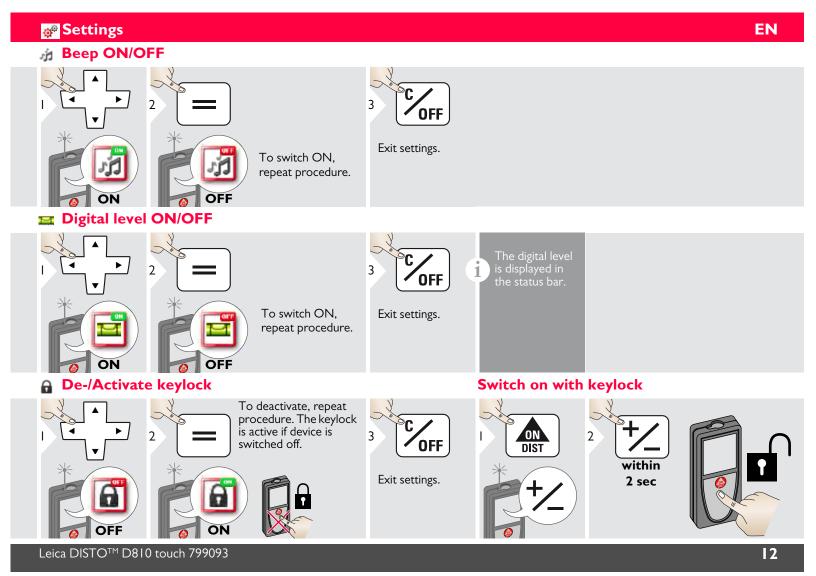


Screenshot photo is saved in gallery.





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## **Bluetooth® Settings**



**Explanation** see info box below.



Exit settings.

Default mode:

Bluetooth® is switched on and black Bluetooth® icon is displayed in status bar.

Blue Bluetooth® icon in status line is displayed if device is connected with Bluetooth®.

**OFF** 

Switches Bluetooth® off.



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Figure Mode: Use this mode if the data needs to be transferred in figures, e.g. working with spread sheets. Ft/in fractional is converted into ft/in decimal.

- **...** Allows the arrow keys to move the cursor on your computer.
- sends the value of the main line to the computer.



- Allows the arrow keys to move the cursor on your computer.
- sends the value of the main line to the computer.



App Mode: Use this mode to transfer the data using an App.

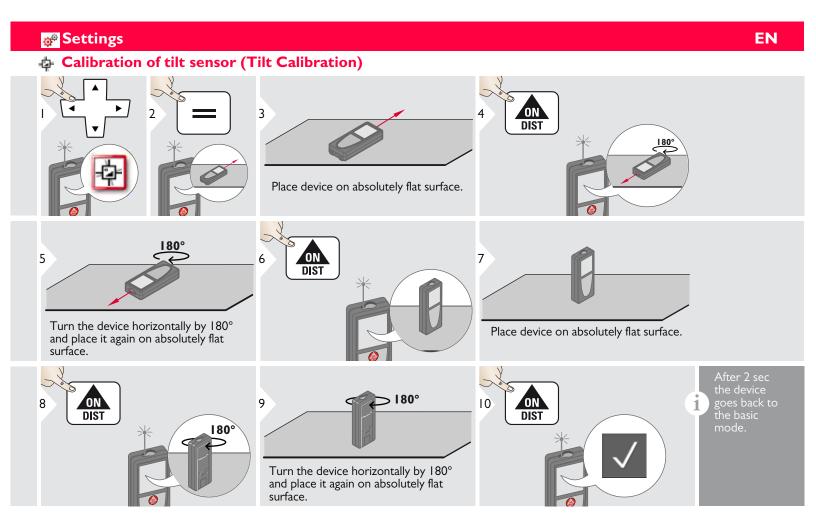
1

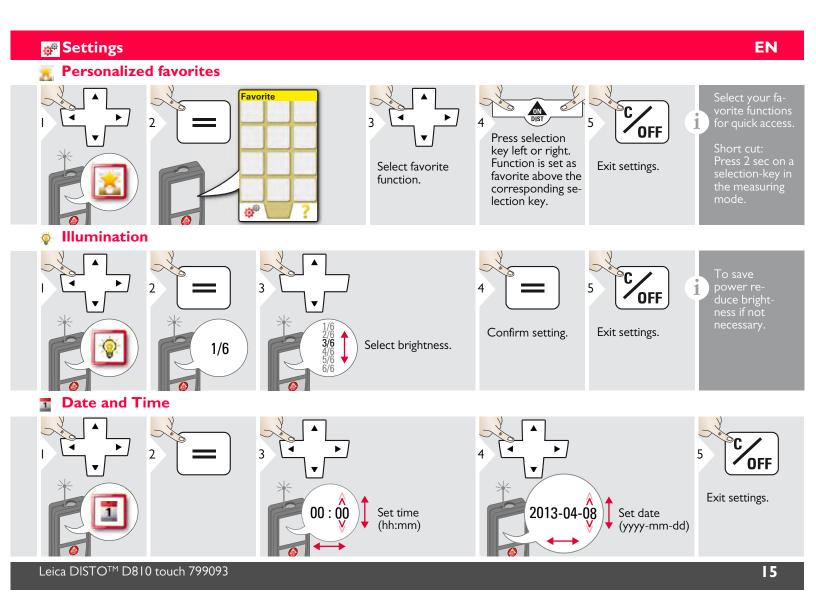
top,... The actual measurement is transferred automatically if Bluetooth® connection is established. To transfer a result from the main line, press =. Bluetooth® switches off as soon as the laser distance meter is switched off.

The efficient and innovative Bluetooth® Smart module (with the new Bluetooth® standard V4.0) works together with all Bluetooth® Smart Ready devices. All other Bluetooth® devices do not support the energy saving Bluetooth® Smart Module, which is integrated in the device.

We provide no warranty for free DISTO™ software and offer no support for it. We accept no liability whatsoever arising from the use of the free software and we are not obliged to provide corrections nor to develop upgrades. A wide range of commercial software can be found on our homepage. Apps for Android® or Mac iOS can be found in special internet shops.

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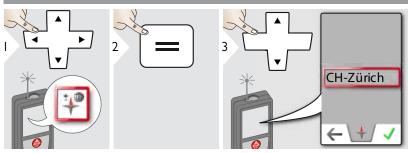


**EN** 

# Compass Adjustment

#### Adjusting the magnetic declination

Depending on your geographic location, the angle of declination may vary from other locations, as the geographic and magnetic poles are aligned. However, if the reference location is not selected, the difference in declination between the poles can differ greatly. For best results, select the nearest geographic reference point using the steps below.

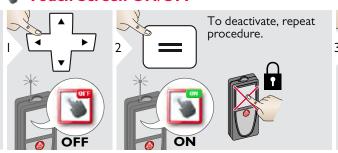


Select the nearest location and the device adjusts the declination accordingly.



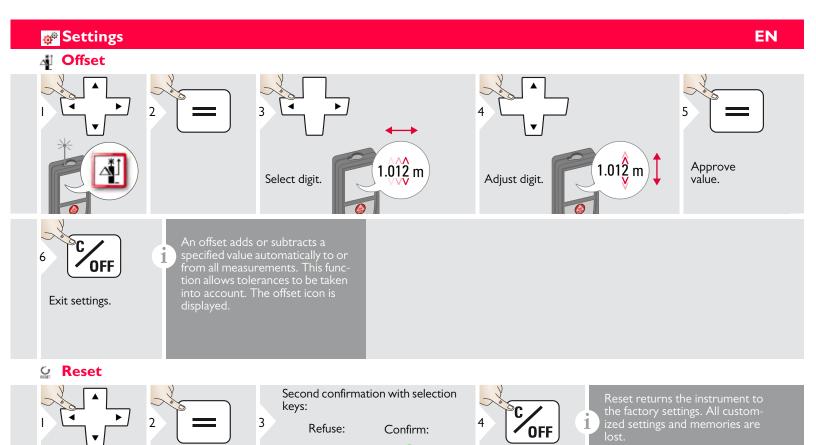
Exit settings.

#### Touch Screen ON/OFF



Exit settings.

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Confirm:

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17

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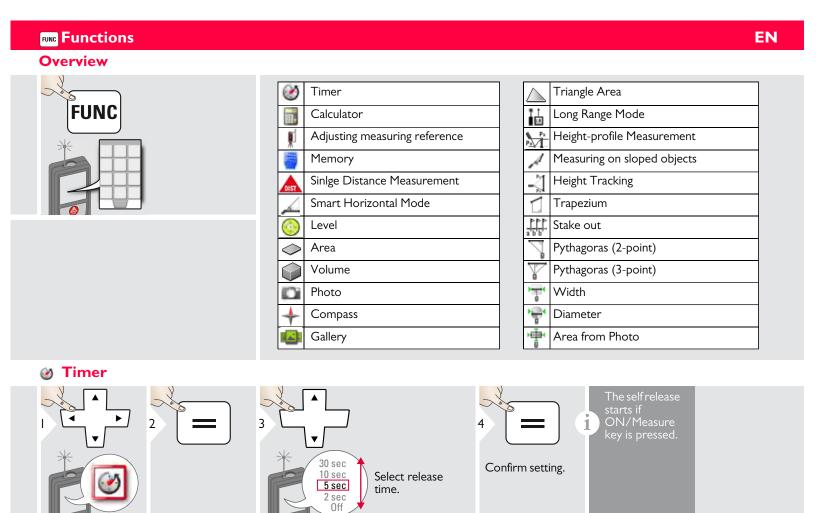
Refuse:

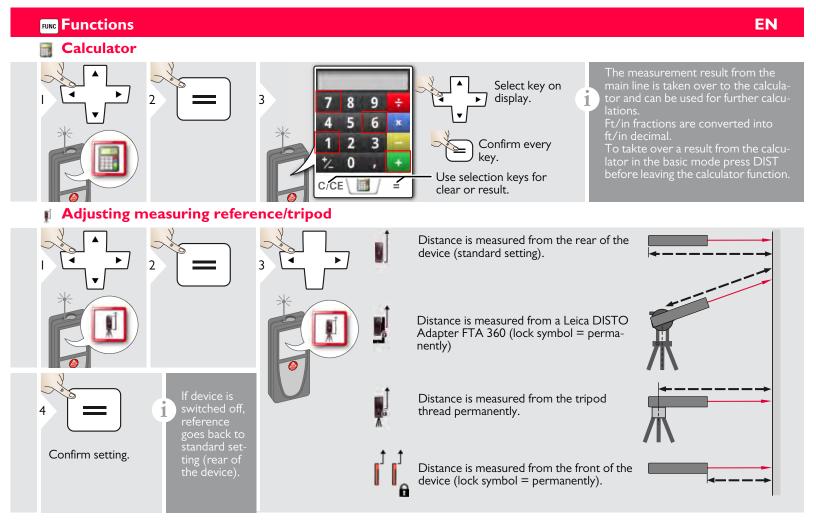
A HARDWARE-RESET is done by pressing 15 sec on ON/DIST key.

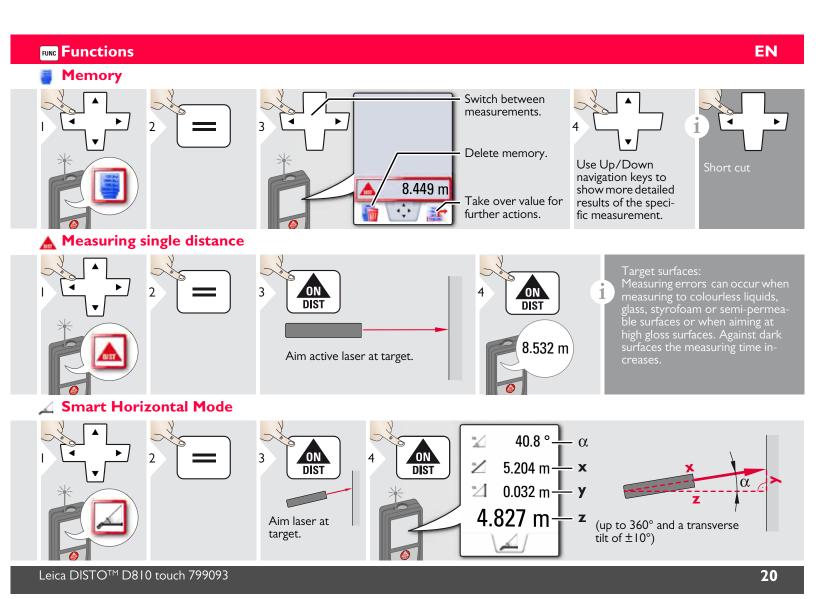
1

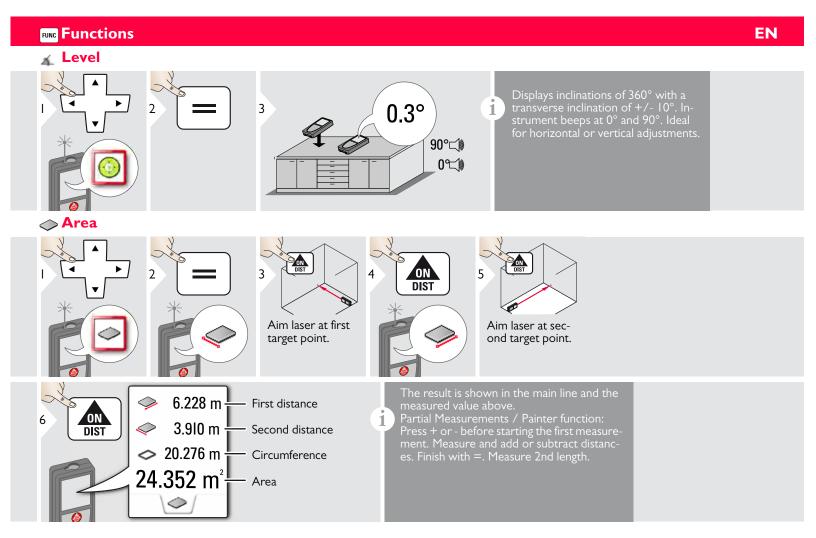
OFF

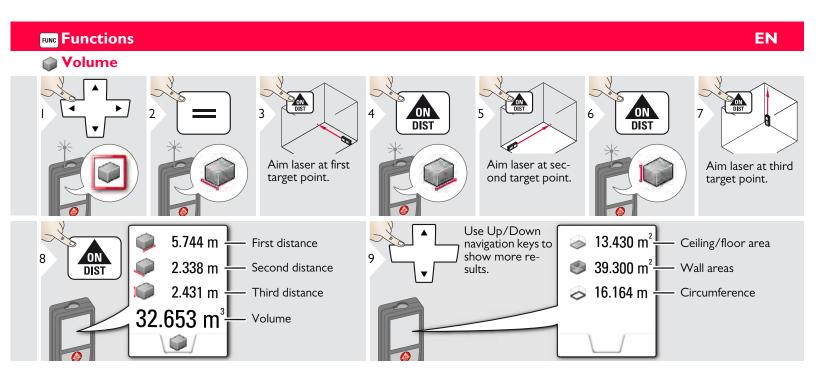
Exit settings.

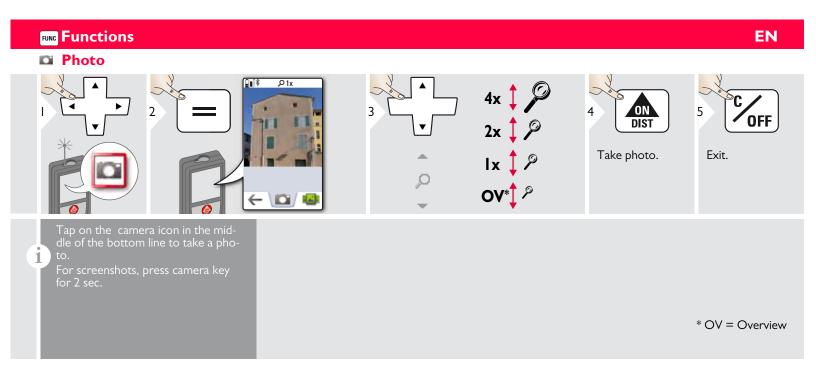






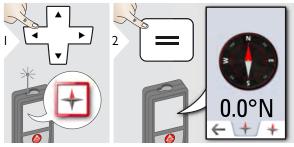




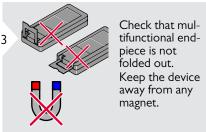


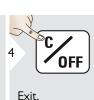


# **Compass**



The arrow always points to true north.





At the following places the compass probably does not work correctly:

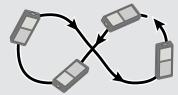
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- Close to high voltage lines (e.g. on train platforms)
- Close to magnets, metal objects or electrical household appliances

If an error message occurs, the device is tilted too much i (>20° over the front /> 10° sidewise).

#### Calibration of Compass:

has to be cali-brated before every first measurement i after switching on the device.

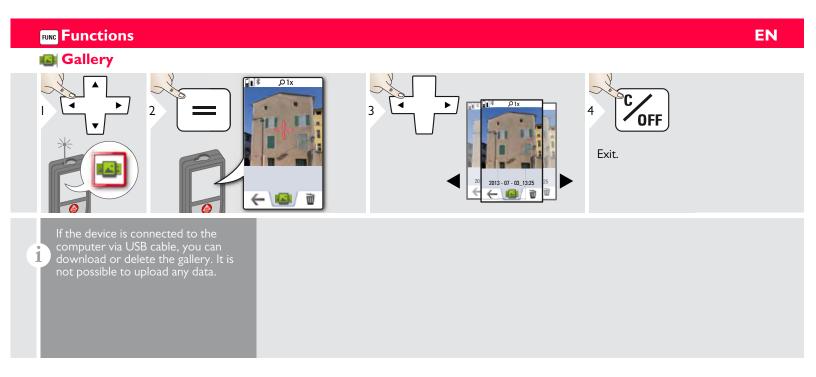


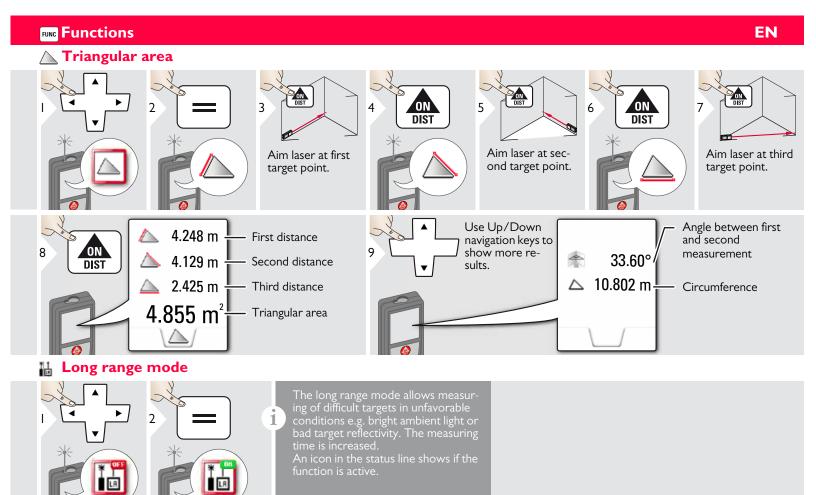
Rotate the device slowly in a figure 8 motion until OK icon appears on the display.

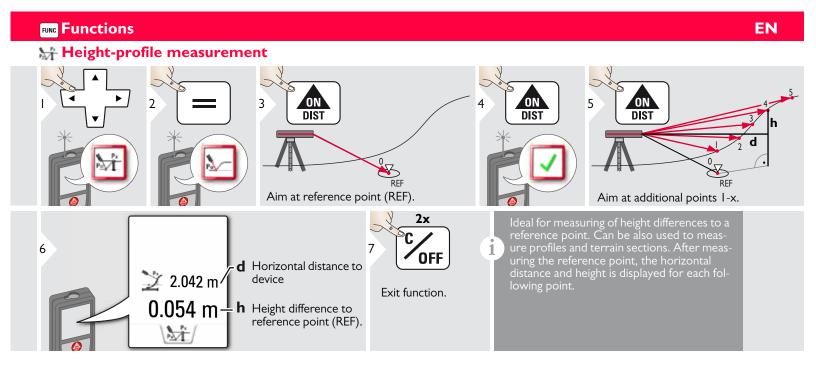


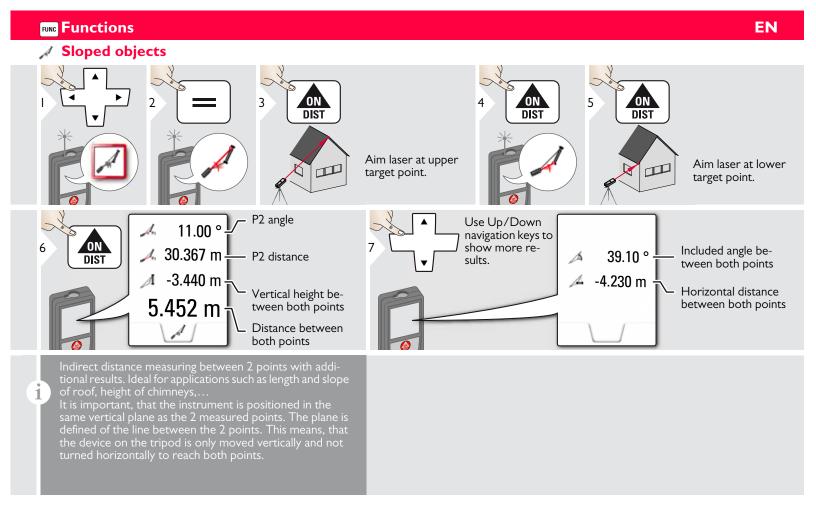
device goes back to the ba-sic mode.

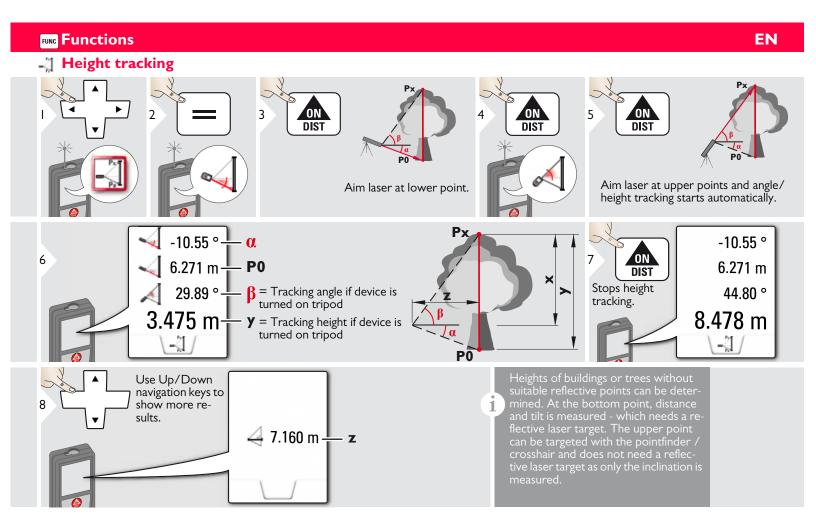
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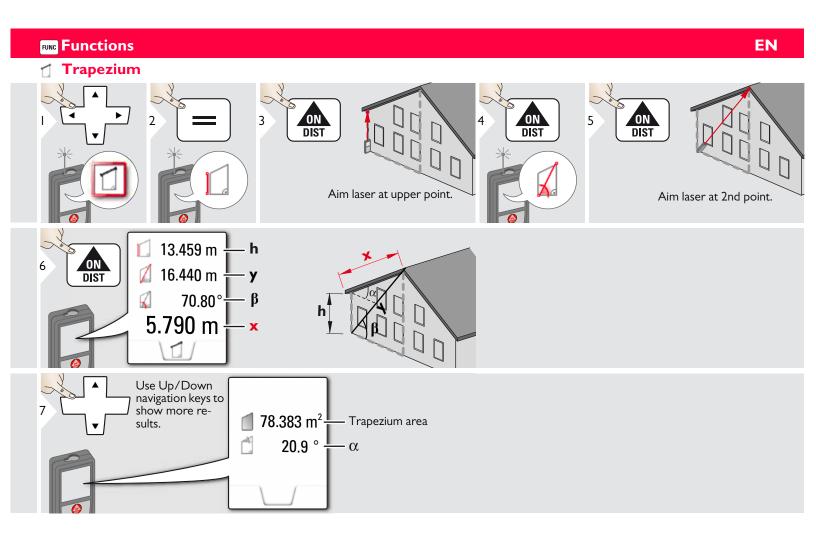


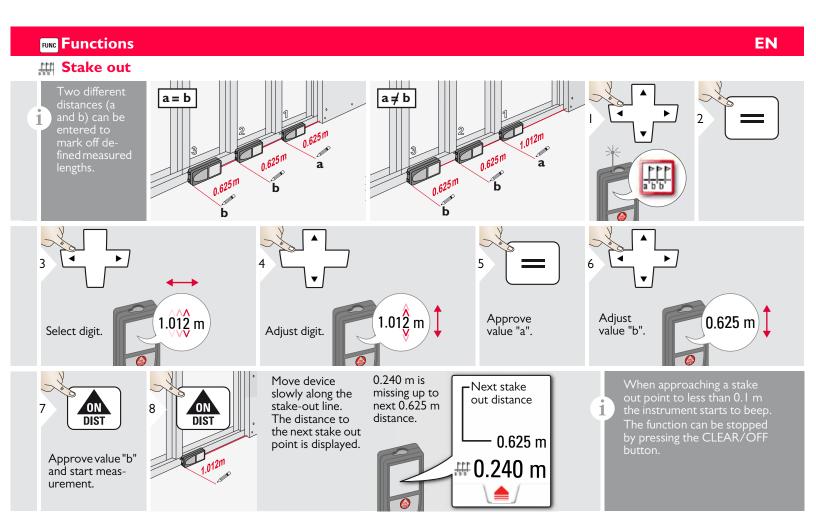


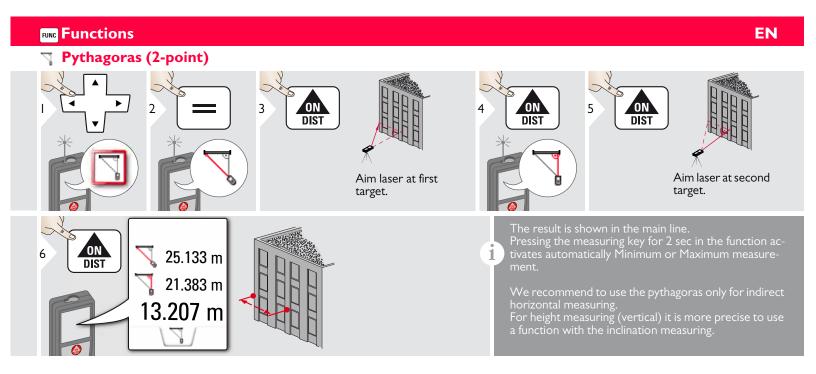


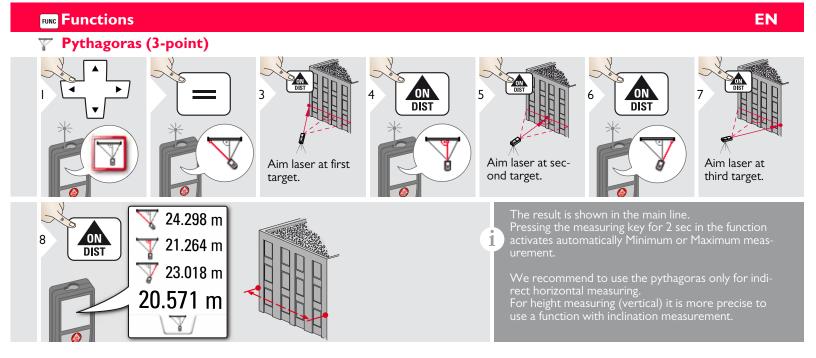


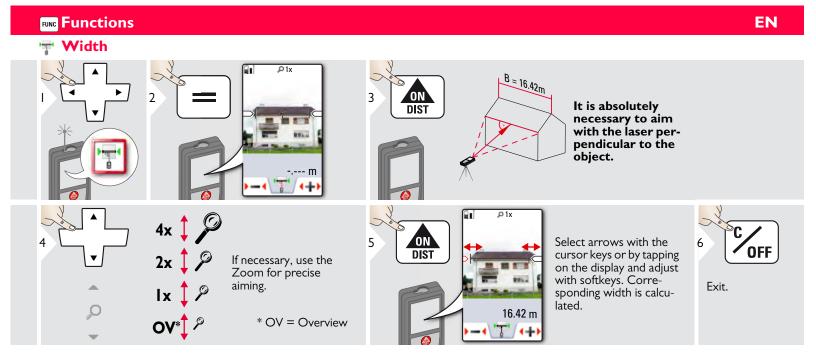


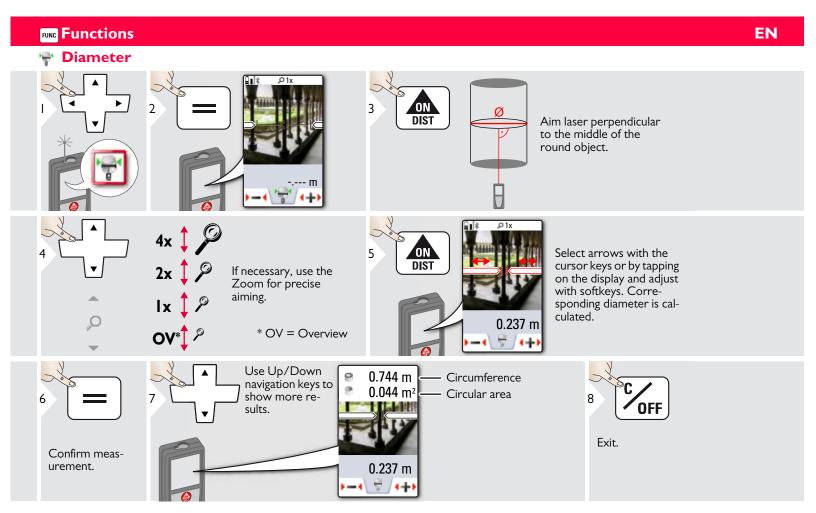


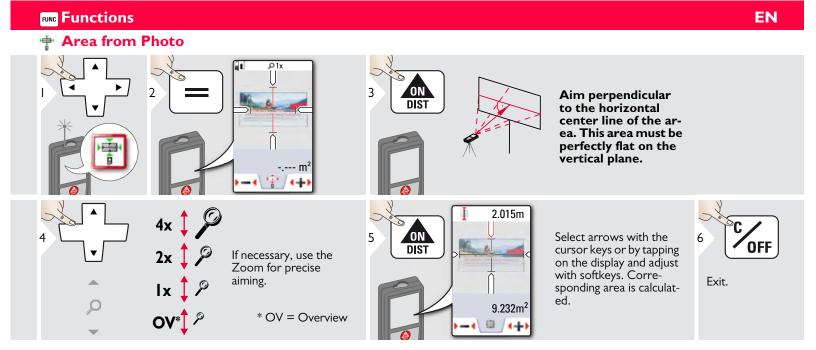












#### **Technical Data**

Power Range Technology

Ø laser point at distances

Distance measurement	
Typical Measuring Tolerance*	± 1.0 mm / ~1/16" ***
Maximum Measuring Tolerance**	± 2.0 mm / 0.08 in ***
Typical Range*	200 m / 660 ft
Range at unfavourable condition ****	80 m / 260 ft
Smallest unit displayed	0.1 mm / 1/32 in

Tilt measurement	
Measuring tolerance to laser beam****	-0.1° / +0.2°
Measuring tolerance to housing*****	± 0.1°
Range	360°

6 /30 / 60 mm (10 / 50 / 100 m)

General		
Laser class	2	
Laser type	635 nm, < 1 mW	
Protection class	IP54 (dust- and splash water protected)	
Autom. laser switch off	after 90 s	
Autom. power switch-off	after 180 s	
Bluethooth <sup>®</sup> Smart	Bluethooth v4.0	
Range of Bluethooth®	10 m	
Dimension (H x D x W)	61 x 31 x 164 mm 2.4 x 1.2 x 6.5 in	
Weight	238 g / 8.4 oz	
Temperature range: - Storage - Operation - Charging	-25 to 70 °C -13 to 158 °F -10 to 50 °C 14 to 122 °F -10 to 40 °C 14 to 104 °F	

Photos / Screenshots		
Resolution for photos	900 x 800 dpi	
Resolution for screenshots	240 x 400 dpi	
File format	JPG	
Download of gallery	USB	
Download of gallery	ОЗВ	

Battery (Li-lon)	
Rated voltage	3.7 V
Capacity	2.6 Ah
Measurements per battery charge	Approx. 4000
Charging time	Approx. 4 h
Output voltage	5.0 V
Charging current	ΙA

<sup>\*</sup> applies for 100 % target reflectivity (white painted wall), low background illumination, 25 °C

At a recommended storage temperature of -20°C to +30°C (-4°F to +86°F), batteries containing a 50% to 100% charge can be stored up to I year. After this storage period the batteries must be recharged.

For accurate indirect results, the use of a tripod is recommended. For accurate tilt measurements a transverse tilt should be avoided.

Leica DISTO™ D810 touch 799093

37

**EN** 

<sup>\*\*</sup> applies for 10 to 100 % target reflectivity, high background illumination, - 10 °C to + 50 °C

<sup>\*\*\*</sup> Tolerances apply from 0.05 m to 10 m with a confidence level of 95%. The maximum tolerance may deteriorate to 0.1 mm/m between 10 m to 30 m, to 0.20 mm/m between  $30\,\mathrm{m}$  to  $100\,\mathrm{m}$  and to  $0.30\,\mathrm{mm/m}$  for distances above  $100\,\mathrm{m}$ 

<sup>\*\*\*\*</sup> applies for 100 % target reflectivity, background illumination of approximately 30'000 lux

<sup>\*\*\*\*\*</sup> after user calibration. Additional angle related deviation of  $\pm -0.01^{\circ}$  per degree up to  $\pm -45^{\circ}$  in each quadrant. Applies at room temperature. For the whole operating temperature range the maximum deviation increases by +/-0.1°.

#### **Functions** Distance measuring yes Min/Max measuring yes Permanent measuring yes Stake-out yes Addition/Subtraction yes Area yes Triangle area yes Volume yes **Trapezium** yes Painter function (area with partial measurem.) **Pythagoras** 2-point, 3-point Smart Horizontal Mode / yes Indirect height Height-profile measurement yes Level yes Sloped objects yes Height tracking yes Memory yes Beep yes Illuminated colour display yes **Multifunctional endpiece** yes Pointfinder (Viewscreen) 4x zoom, OV Bluetooth® Smart yes **Personalized Favorites** yes Timer yes Long Range Mode yes Calculator yes Photo/Screenshot yes Compass yes Gallery with USB download yes **Diameter** yes Width yes Area from Photo yes

# **Message Codes**

If the message **Error** does not disappear after switching on the device repeatedly, contact the dealer.

If the message **InFo** appears with a number, press the Clear button and observe the following instructions:

No.	Cause	Correction
156	Transverse tilt greater than 10°	Hold the instrument without any transverse tilt
162	Calibration mistake	Make sure, the device is placed on a absolutely horizontal and flat surface. Repeat the calibration procedure. If the mistake still occurs, contact your dealer.
204	Calculation error	Perform measurement again.
240	Data transfer error	Repeat procedure.
252	Temperature too high	Let device cool down.
253	Temperature too low	Warm device up.
255	Received signal too weak, measuring time too long	Change target surface (e.g. white paper).
256	Received signal too high	Change target surface (e.g. white paper).
257	Too much back- ground light	Shadow target area.
258	Measurement outside of measuring range	Correct range.
260	Laser beam inter- rupted	Repeat measurement.

#### Care

• Clean the device with a damp, soft cloth.

**EN** 

- · Never immerse the device in water.
- · Never use aggressive cleaning agents or solvents.

#### Warranty

#### Lifetime Manufacturer's Warranty

Warranty coverage for the entire usage time of the product according to Leica Geosystems International Limited Warranty. Free of charge repair or replacement for all products that suffer defects as a result of faults in materials or manufacturing, for the entire life of the product.

#### 3 Years No Cost

Guaranteed service should the product become defective and require servicing under normal conditions of use, as described in the user manual, at no additional charge.

To receive the "3 years no cost" period, the

of the purchase date. If the product is not registered, a "2 years no cost" period applies.

Leica DISTO™ D810 touch 799093



# **Safety Instructions**

The person responsible for the instrument must ensure that all users understand these directions and adhere to them.

#### Areas of responsibility

#### Responsibilities of the manufacturer of the original equipment:

The company above is responsible for supplying the product, including the User Manual in a completely safe condition.

The company above is not responsible for third party accessories.

#### Responsibilities of the person in charge of the instrument:

- To understand the safety instructions on the product and the instructions in the User Manual.
- To be familiar with local safety regulations relating to accident prevention.
- Always prevent access to the product by unauthorised personnel.

- Measuring distances
- Tilt measurement
- Data transfer with Bluetooth®

#### **Prohibited use**

- Using the product without instruction
- Using outside the stated limits
- · Deactivation of safety systems and removal of explanatory and hazard labels
- Opening of the equipment by using tools (screwdrivers, etc.)
- · Carrying out modification or conversion of the product
- Use of accessories from other manufacturers without express approval
- Deliberate dazzling of third parties; also in the dark
- Inadequate safeguards at the surveying site (e.g. when measuring on roads, construction sites, etc.)
- Deliberate or irresponsible behaviour on scaffolding, when using ladders, when measuring near machines which are running or near parts of machines or installations which are unprotected
- · Aiming directly in the sun

# **M**WARNING

Watch out for erroneous measurements if the instrument is defective or if it has been dropped or has been misused or modified. Carry out periodic test measurements.

Particularly after the instrument has been subject to abnormal use, and before, during and after important measurements.

# **CAUTION**

Never attempt to repair the product yourself. In case of damage, contact a local dealer.

# **WARNING**

Changes or modifications not expressly approved could void the user's authority to operate the equipment.

#### Limits of use

Refer to section "Technical data". The device is designed for use in areas permanently habitable by humans. Do not use the product in explosion hazardous areas or in aggressive environments.

Leica DISTO™ D810 touch 799093

# **Disposal**

# **A**CAUTION

Flat batteries must not be disposed of with household waste. Care for the environment and take them to the collection points provided in accordance with national or local regulations.

The product must not be disposed with household waste.

Dispose of the product appropriately in accordance with the national regulations in force in your country.

Adhere to the national and country specific regulations.

Product specific treatment and waste management can be downloaded from our homepage.

## **Electromagnetic Compatibility** (EMC)

# **MARNING**

The device conforms to the most stringent requirements of the relevant standards and regulations.

Yet, the possibility of causing interference in other devices cannot be totally excluded.

#### FCC statement (applicable in **U.S.**)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- · Consult the dealer or an experienced radio/TV technician for help.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- this device must accept any interference received, including interference that may cause undesired operation.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- This device may not cause interference and
- this device must accept any interference, including interference that may cause undesired operation of the device.

Leica DISTO™ D810 touch 799093

# **Safety Instructions**

#### Use of the product with Bluetooth®



Electromagnetic radiation can cause disturbances in other equipment, in installations (e.g. medical ones such as pacemakers or hearing aids) and in aircraft. It can also affect humans and animals.

#### **Precautions:**

Athough this product conforms to the most stringent standards and regulations, the possibility of harm to people and animals cannot totally excluded.

- Do not use the product near petrol stations, chemical plants, in areas with a potentially explosive atmosphere and where blasting takes place.
- Do not use the product near medical equipment.
- Do not use the product in airplanes.
- Do not use the product near your body for extended periods.

## Laser classification



The device produces visible laser beams, which are emitted from the instrument: It is a Class 2 laser product in accordance

• IEC60825-I: 2007 "Radiation safety of laser products"

#### Laser Class 2 products:

Do not stare into the laser beam or direct it towards other people unnecessarily. Eye protection is normally afforded by aversion responses including the blink reflex.

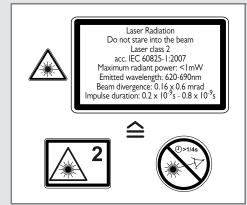
# **WARNING**

Looking directly into the beam with optical aids (e.g. binoculars, telescopes) can be hazardous.

# **A**CAUTION

Looking into the laser beam may be hazardous to the eyes.

#### **Labelling**





Subject to change (drawings, descriptions and technical data) without prior notice.

Leica DISTO™ D810 touch 799093

Leica Geosystems AG, Heerbrugg, Switzerland has been certified as being equipped with a quality system which meets the International Standards of Quality Management and Quality Systems (ISO standard 9001) and Environmental Management Systems (ISO standard 14001).

Original text (799093 EN)

Pat. No.: WO 9427164, WO 9818019, WO 0244754, WO 0216964,

US 5949531, EP 1195617, US 7030969, US 8279421 B2,

Patents pending

- when it has to be **right** 

